



POINT OF VIEW | APPLICATION MANAGEMENT

Unlock Application Management With Data-Led Automation

Where to start your continuous
automation journey



Application lifecycle management (ALM) is complicated. You need to quickly respond to market changes, support DevOps with agility and manage a multi-layered application portfolio. And there's no shortage of bottlenecks. Obstacles include repetitive tasks, regular upgrades and patches, costly downtime and the omnipresent possibility of human error.

These challenges fall into three broad categories: people, process and technology. You depend on people, which increases human-related risks. A chain of intermediate processes can obstruct the workflow at any stage. And a disruptive technology landscape keeps both business and IT teams on their toes.

To stay ahead, you need cognitive tools that sense, predict and autonomously resolve application maintenance issues in business processes, application layers or the underlying infrastructure. When you invest in the appropriate tools, digital labor can maximize business value. It can help you run routine back-end tasks with efficiency, speed, and predictive and preventive prowess. Digital labor also frees up operators to focus their time and energy on mission-critical action items.

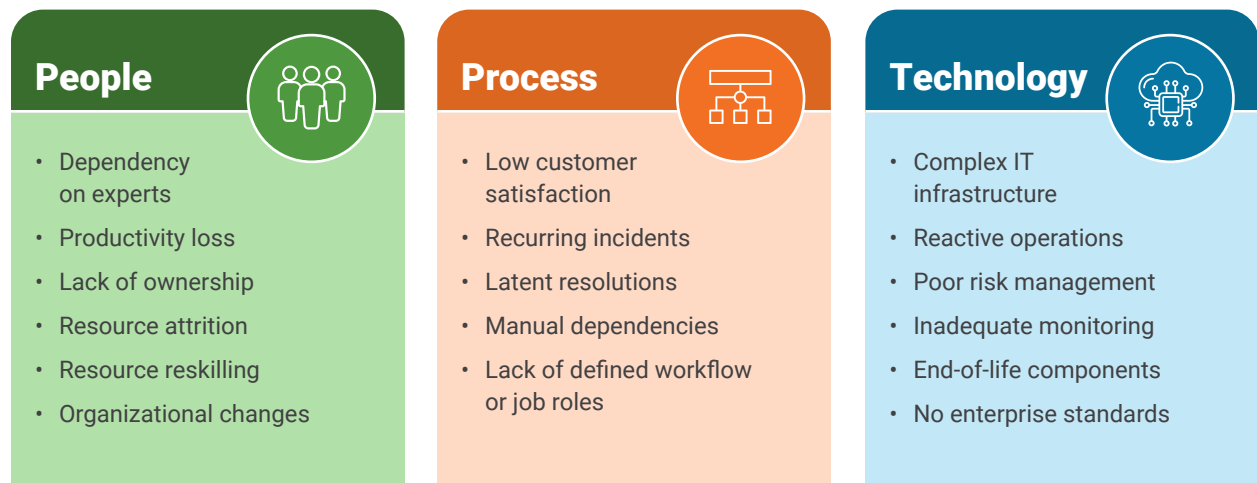


Figure 1: ALM bottlenecks

Automation: Filter out the noise to uncover valuable insight

Holistic, integrated and centralized application management automation helps you navigate the modernization labyrinth across diverse IT environments. But it's not easy to achieve. The buzz about best practices, alternative approaches and multiple market vendors complicates things.

Finding the right route to application management automation means overcoming a lack of clarity and information deluge. It also means resolving people, process and technology-related bottlenecks. For example, human errors, disparate processes, complex automation approaches and hyper-personalized tech stacks.

Your automation journey starts with time-consuming tasks like identifying the right use cases. It also includes multi-team collaboration for documentation, plug-and-play automation choices and continuously emerging software-as-a-service (SaaS) applications. Tools are available to help you enable automation in the application ecosystem. These include self-help tools, cognitive bots and IT service management (ITSM). There are also applications that can help in proactive health checks, anomaly detection and IDoc management.

Data automation changes application management. By deriving actionable insights from the non-stop influx of data, analytics can help you minimize human intervention. It also delivers contextual intelligence and unprecedented productivity. In his recent blog, "[How enterprise platforms are driving digital transformation with hyperautomation](#)," our digital portfolio leader Robert Duffner highlights how hyperautomation expands capabilities such as process mining with machine learning (ML) and artificial intelligence (AI). These capabilities transform and help create new business processes that would have been impossible with simple automation capabilities.¹



Look before you leap

Are you on the path to achieving data-powered automation? It's important to assess your digital maturity before you start your journey (see Figure 2). Your rationale for automating will define the roadmap and key performance indicators (KPIs). To start, build an inventory of existing applications and identify the instrumentation or tools within your environment used to track and manage application health.

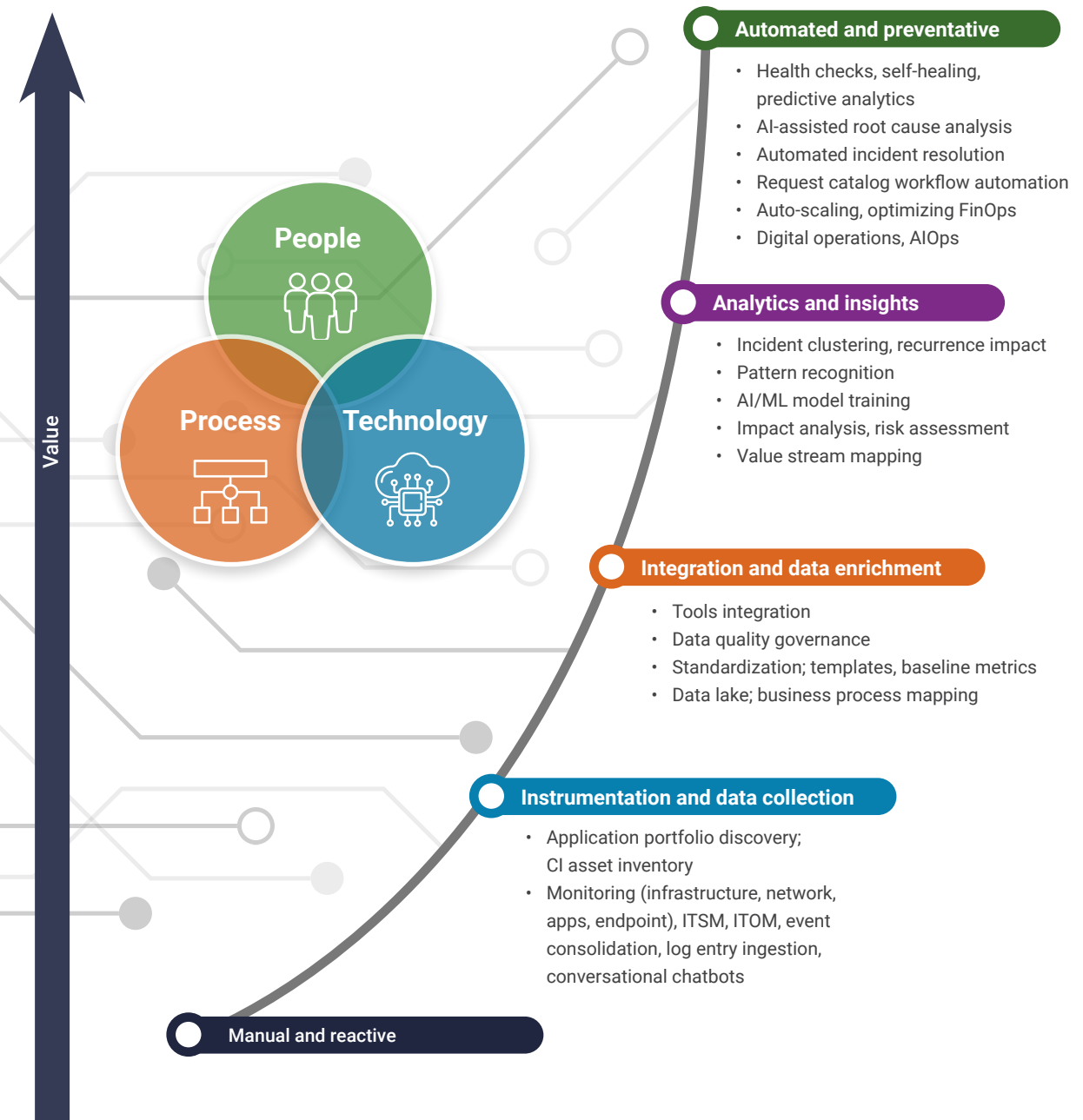


Figure 2: Analytics and automation journey

To collect and enrich data you need to capture and record application environment and incident information. It comes from either monitoring instrumentation or compiling user-reported issues. You can establish data quality governance and use AI-enabled tools to uncover insights and improve application health. The next step is answering specific questions across the distinct phases of your analytics and automation journey – see Table 1.

Table 1: Ask yourself these questions to help define your roadmap

Application portfolio discovery	Integration and data enrichment
<ul style="list-style-type: none"> • Do you monitor applications and their infrastructure? • Do you log and track service requests and incidents in an ITSM tool? • Do applications write to log files? If so, where? • Do you have an updated asset-tracking catalog, including all virtual and physical hardware and software? • Do you document configuration management processes? • Do you have any privately hosted or air-gapped infrastructure or applications? 	<ul style="list-style-type: none"> • Are your existing application management tools integrated? • Have you applied standardized naming conventions across the tools? • Have you defined data quality governance standards? • Do you create and assign incidents to a resolver group when you detect an anomaly? • Are there external dependencies for your network or application libraries hosted by partners or third-party vendors? • Do batch schedulers create events when jobs complete or abnormally end? • Have you baselined normal and optimal application performance metrics?
Analytics and insights	Automation tooling
<ul style="list-style-type: none"> • What are the sources of time-consuming support activities? • What incidents can be clustered together? • To overcome the lack of automation interfaces, what are your coding, modeling, reorganizing and API integration needs? • Do you have tools to consume high volumes of data and identify recurring patterns and anomalies? 	<ul style="list-style-type: none"> • Do you apply automated workflows to standard service catalog requests? • Do you automate repetitive and labor-intensive tasks through robotic process automation (RPA)? • Do you use predictive analytics to identify application degradation or failure? • Do you apply automated corrective action and resource scaling to prevent application performance issues? • Do you use automated processes to scan system logs and identify anomalies? • Do you run periodic application system health checks to identify risk components detected by analytics?

Identify use cases

After you answer these questions, break down end-to-end processes into smaller pieces and automate simple use cases that occur frequently or are highly disruptive to the business. Two of the most common ones are processing service requests and handling incidents:

Processing service requests

- Assess the usual requests and the steps required to address them – the most frequent requests are the best candidates to automate
- Verify that all information required to complete the task is available without human intervention
- Define the workflow of tasks with identified dependencies
- Leverage ITSM tools, Windows and Linux operating system scripting options or even RPA to replace manual repetitive tasks as you build out your service request catalog

Outcomes: You'll be able to increase responsiveness with optimized labor costs and satisfy users with enriched experiences.

Many IT support requests are inquiries from users or tasks that users may be able to resolve themselves. A chatbot or other virtual agent can help users address these inquiries and get immediate help.

Handling incidents

- Identify the most common and/or most impactful incidents
- Identify the root cause of the incidents and the steps to prevent them from recurring
- Build a standard template to capture the resolution steps that the support technician uses to restore service
- Build a script to execute those steps when the incident reoccurs next; use ML models to identify additional incidents that match the characteristics of those patterns
- Leverage analytics tools (like [NTT DATA Nucleus Command Center for Applications](#)) to identify incident characteristics and repeating patterns and correlate them to potential causes and appropriate actions to take – clustering incidents by like characteristics and identifying the most frequent and/or business-impacting issues can help prioritize incident triage and remediation in the form of runbook automation

Outcomes: You'll be able to increase responsiveness with optimized labor costs and satisfy users with enriched experiences.

As your enterprise automation enablement matures, more advanced use cases will emerge. These can include:

- Proactive monitoring and auto-scaling of applications and infrastructure
- Self-healing and automated recovery for applications and infrastructure
- Predictive threat detection and advanced orchestration
- Automated change and configuration management



Mix analytics with automation to reap hidden benefits

If you incorporate Configured Item (CI) data and change management ticket data, you can perform impact analysis and risk assessments on the impending changes. These processes compare historical incidents against the CIs being changed and identify the criticality of the business processes involved.

When the application support team has a list of scheduled infrastructure server CI patches on a change ticket, they can see any potentially impacted applications. The team can then execute automated test scripts to verify the patches had no negative impact. You can train an ML model by leveraging the historical volume of incidents against a specific infrastructure and application CIs. The model will score the risk associated with each change ticket and the areas likely to have post-change incidents. Knowing the impact and potential risk will keep the application support team prepared, lower incident volumes and reduce any negative impact on your business.

Another thing to look for is the level of collaboration between the service manager, ITSM tool administration and support teams across digital operations. This includes your network, cybersecurity, infrastructure and applications. Collaboration is essential when you begin analyzing incident data. Involving the support team members responsible for resolving and closing incidents in the analysis process fosters better adoption and compliance with data governance policies. The initial assessment of manually populated data often reveals inconsistencies and inadequacies in the data. Implementing data quality governance and adjusting category selections to target pain points should be part of the process.

You can use analytics to identify incidents associated with user inquires or caused by incorrect user actions. The results can help you create knowledge articles, content for conversational bots, nano-training sessions, and demonstration videos for users and service desk agents. And you can use the insights to implement automated health check scripts to address system degradation before an incident arises. Analytics also provides perspective on user sentiment, with aggregate metrics to score the application support users receive in specific departments or locations. It helps uncover any areas that need additional focus to support maturity.

Conclusion

Application management automation with full autocorrection and self-healing capabilities is possible. If you carefully increase the capacity and speed of deliverables, you can reduce the total cost of ownership and support human decisions with quality assurance. It also requires optimizing your IT infrastructure and streamlining multiple processes. Align your initiatives with a DevOps mode of operation as more frequent, smaller changes often result in less risk than a more traditional waterfall release cycle. Now you're on the path to sustainable modernization and continuous automation.

About the authors



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For over 30 years, Jack has designed, built, implemented and supported application portfolios for some of the world's largest enterprises. He leads NTT DATA's digital application analytics and automation offerings, including data analytics, AIOps and DevOps.



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Drew's experiences in application development, systems administration, database administration, networking, security, digital and enterprise architecture, at various levels of leadership, enable him to holistically drive connectivity between business strategies and IT solutions. Today, he leads NTT DATA's application management offerings, including application operations, managed testing, managed application development and modernization, and application portfolio evolution.

Ready to get started?

NTT DATA will collaborate with you and co-deliver data-driven automation. Our end-to-end application management services will help you add value to your application ecosystem while stimulating innovation.

Reach out to us – email drew.gregory@nttdata.com and jack.koomen@nttdata.com – or explore our [offerings](#) to learn more about automation possibilities, use cases and tailored digital transformation journeys.

Visit nttdataservices.com to learn more.

Sources

1. [Robert Duffner. "How Enterprise Platforms Are Driving Digital Transformation with Hyperautomation." NTT DATA. January 11, 2023.](#)



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